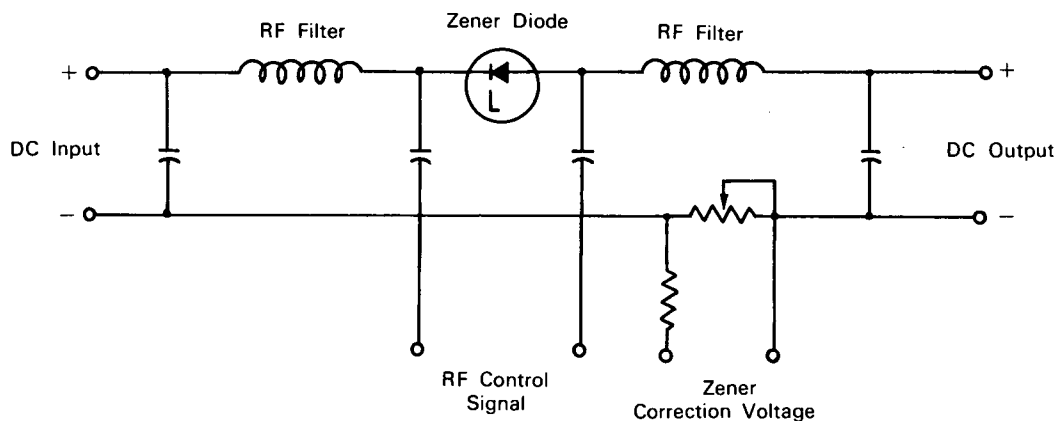


NASA TECH BRIEF



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Zener Diode Controls Switching of Large Direct Currents



The problem: To design a simple circuit to control the switching (gating) of large dc signals.

The solution: A high-current zener diode is connected in series with the positive input terminal of the dc supply to block the flow of direct current until a high-frequency (RF) control signal is applied across the zener diode.

How it's done: The zener diode, being a high-impedance device, prevents the flow of direct current, as long as the zener voltage is not exceeded. When the RF control signal is applied to the dc blocking capacitors across the zener diode, its impedance drops to a very low value and therefore permits essentially full direct-current flow from the dc input to output terminals.

The RF filters and blocking capacitors isolate the dc lines from the RF lines. The zener correction-voltage input compensates for the small dc voltage drop across the diode during the conduction state.

Note: Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
P.O. Box 1537
Houston, Texas, 77001
Reference: B65-10350

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: IBM Space Guidance Center under contract to Manned Spacecraft Center (MSC-188)
Category 01